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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/509,121	03/23/2000	HIDEKAZU KOBAYASHI	105034	3415
25944	7590	11/18/2004	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			ROY, SIKHA	
			ART UNIT	PAPER NUMBER
			2879	

DATE MAILED: 11/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/509,121

Applicant(s)

KOBAYASHI, HIDEKAZU

Examiner

Sikha Roy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15,17 and 19-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15,17 and 19-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 March 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 13, 2004 has been entered.

Cancellation of claims 27,28,30,32-38 and 40 has been entered.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the limitation reciting 'each of the pixels having at least a TFT device' in claim 15 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for

consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15, 17, 19-21, 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,550,066 to Tang et al., and further in view of U.S. Patent 5,739,635 to Wakimoto.

Regarding claim 15 Tang discloses (Figs. 3, 8 column 6 lines 13-20, column 7 lines 25-45, column 9 lines 58-63) an active matrix 4-terminal TFT-EL display device comprising plurality of pixels having TFT device (EL element is selected via the logic TFT T1, and the excitation power is controlled by power TFT T2), a bank layer 74 (passivating layer of an insulating material) defining the pixels, an anode 72 (transparent electrode), a light emitting layer 82 (organic electroluminescent layer)

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above the anode and a cathode 84 continuously formed so as to cover the plurality of pixels.

Claim 15 differs from Tang in that Tang fails to exemplify a thin-film layer provided above the light emitting layer and under the cathode continuously formed so as to cover the plurality of pixels.

Wakimoto in analogous art of organic electroluminescent device discloses (column 2 lines 1-10, 53-58, column 6 lines 20-30 Fig. 3) an electroluminescent device comprising a light emitting layer 3 including organic polymer (organic compound such as dicyanomethalene derivatives, quinacridone derivatives) emitting light in the visible spectrum between the anode 2 and cathode 1 and a thin film layer 6b (electron-injecting layer of an insulating thin film) disposed between the light emitting layer 3 and the cathode 1. Wakimoto further discloses this thin film layer 6b made of alkaline metal compound such as alkaline metal halide, alkaline metal oxides having a very low work function acts as an insulator (column 2 lines 59-67) and hence inherently works as a means for suppressing the current flowing through the light-emitting layer and thus improves the emitting efficiency of the organic EL device which stably emits light at a high luminance upon application of low voltage for a long time.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to modify the continuously formed cathode over the pixel of organic electroluminescent device of Tang by cathode and the thin film layer continuously formed under the cathode as disclosed by Wakimoto for suppressing the current flowing

through the light-emitting layer and thus providing an organic EL device capable of emitting light for a long time.

Regarding claims 17 Wakimoto discloses (column 2 lines 59-66) that the means for suppressing the current flowing through the light emitting layer and not contributing to the light emission (electron injecting layer) is made of alkaline metal oxides and alkaline metal halides.

Regarding claim 19, Tang discloses (Figs. 3 and 8 column 7 lines 29-34) the bank 74 overlapping the edges of the anode 72.

Regarding claims 20 and 21 Tang discloses (column 7 lines 36-64)) an electroluminescent device comprising a hole injection layer (buffer layer) and hole transporting layer typically 150 to 200 nm thick formed between the light-emitting layer and the anode.

Regarding claim 25 Tang discloses (column 7 line 45 through column 8 line 19) the light-emitting layer being formed by depositing a plurality of light-emitting layers.

Regarding claim 26 Tang discloses (column 1 lines 25-31) the organic EL device used in flat panel display in the electronic devices such as lap top computers, pocket-TVs.

Claims 22 and 23, are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,550,066 to Tang et al., and U.S. Patent 5,739,635 to Wakimoto and further in view of U.S. Patent 6,111,356 to Roitman et al.

Referring to claims 22 and 23 Tang and Wakimoto do not disclose light emitting layer including at least one of polyfluorene and derivative of polyfluorene, poly(p-phenylenevinylene) and derivative of poly(p-phenylenevinylene).

Roitman et al. in the same field of endeavor disclose (column 2 lines 56-59) the polymer layers of electroluminescent material include polyfluorene and polyphenylenevinylene. Roitman et al. further note (column 4 lines 44-56) that the layers formed of these polymers maintain their mechanical integrity, resistance to lifting off and electronic characteristics through the process of development and hence are preferred.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to include polyfluorene and polyphenylenevinylene in the light emitting layer as taught by Roitman et al. in the electroluminescent device of Tang and Wakimoto for their maintenance of mechanical integrity, resistance to lifting off and electronic characteristics through the process of development.

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,550,066 to Tang et al., and U.S. Patent 5,739,635 to Wakimoto and further in view of JP 10-36487.

Regarding claim 24 Tang and Wakimoto do not exemplify the degree of organic polymerization being at least two.

JP 10-36487 in relevant art of organic electroluminescent device discloses the degree of polymerization of the organic polymer is desirable between 1 and 2000. It is noted that depending on the degree of polymerization the fluorescent material of a

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polymer-based EL element can be produced by a simple process, has a well-defined structure and soluble in organic solvents for easy film formation. Regarding claim 24, Tang and Wakimoto in view of JP 10-36487 disclose the claimed invention except for degree of polymerization being at least 2. It has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. *In re Leshin*, 125 USPQ 416. Thus, it would have been obvious to one having ordinary skills in the art at the time the invention was made to have selected the organic polymer of Wakimoto and JP 10-36487 to be at least 2, since the selection of known materials for a known purpose is within the skill of the art.

Response to Arguments

Applicant's arguments with respect to claim 15 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 6,373,453 to Yudasaka discloses active matrix display with cathode layer continuously formed on the pixels.

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Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikha Roy whose telephone number is (571) 272-2463. The examiner can normally be reached on Monday-Friday 8:00 a.m. – 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Sikha Roy
Patent Examiner
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